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10/735,725	12/16/2003	Tsunenori Yamamoto	503.39221CX1	3672
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EXAMINER				
PIZIALI, JEFFREY J				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/735,725

Applicant(s)

YAMAMOTO ET AL.

Examiner

Jeff Piziali

Art Unit

2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 January 2010 and 17 August 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) 3 and 6-10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4 and 5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☒ Certified copies of the priority documents have been received in Application No. 09/695,174.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-940)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent *Application No. 09/695,174*, filed on *25 October 2000*.

Election/Restrictions

2. Applicant's election with traverse of *Species 3C (claims 1, 2, 4, and 5)* in the reply filed on *7 January 2010* is acknowledged. The traversal is on the ground(s):

"CLAIMS 1, 2, 4 AND 5 HAVE ALREADY BEEN SEARCHED AND EXAMINED THROUGH NUMEROUS OFFICE ACTIONS ALREADY WITHOUT SERIOUS BURDEN, AS EVIDENCED BY VOLUMOUS PRIOR PROSECUTION, INCLUDING EXAMINATION OF CLAIMS 1, 2, 4 AND 5 WITHIN THE PRIOR OFFICE ACTION" (see pages 7-8 of the election filed on *7 January 2010*). This is not found persuasive.

There is an examination and search burden for these patentably distinct species due to their mutually exclusive characteristics. Additionally, the species require a different field of search (e.g., searching different classes /subclasses or electronic resources, or employing different search strategies or search queries).

The Applicant has not disputed that the species in question exhibit mutually exclusive characteristics. Moreover, the Applicant has not acknowledged on the record that the species in question are obvious variants of one another.

The Applicant alleges, "*CLAIMS 1, 2, 4 AND 5 HAVE ALREADY BEEN SEARCHED AND EXAMINED*" (page 7 of the election filed on 7 January 2010).

However, the subject matter of the claims, as amended on 17 August 2009, has not been searched or examined in any previous Office action. The 17 August 2009 amendment adds hitherto unexamined subject matter to each of claims 1, 2, 4, and 5.

37 CFR 1.142(a) explains that a restriction requirement "*may be made at any time before final action.*"

The restriction requirement is still deemed proper and is therefore made FINAL.

3. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. *Claims 1, 2, 4, and 5* are rejected under 35 U.S.C. 112, first paragraph (*scope of enablement*), because the specification, does not reasonably provide enablement for ***"illumination panel areas"*** (*claim 1, line 18*).

The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims.

The claimed ***"illumination panel areas"*** (*in claim 1*) is a purely functional recitation with no limitation of structure.

Furthermore, the claimed ***"the illumination start time and the illumination 'on' time of the illumination panel areas"*** (*in claims 4 and 5*) is a purely functional recitation with no limitation of structure. For example: How does an *"area"* have a start or *"on"* time?

Although the Applicant traversed a previous *scope of enablement* rejection (*see page 8 of the 17 August 2009 Response*), the Applicant does not appear to dispute that the subject matter in question is a purely functional recitation with no limitation of structure.

See Ex parte Miyazaki (BPAI Precedential 19 November 2008).

6. The remaining claims are rejected under 35 U.S.C. 112, first paragraph, as being dependent upon rejected base claims.

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. *Claims 1, 2, 4, and 5* are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9. Claim 1 is amenable to two or more plausible claim constructions.

The use of the phrase “*illumination panel areas*” (*claim 1, line 18*) renders the claim indefinite.

The claimed “*illumination panel areas*” is amenable to two plausible definitions.

Based on the description provided in the Specification and/or the common meaning of the phrase, “*illumination panel areas*” could be interpreted to mean:

- (a) Fluorescent back-light tubes.
- (b) The front substrate of the display being illuminated by ambient room light.

Thus, neither the Specification, nor the claims, nor the ordinary meanings of the words provides any guidance as to what Applicant intends to cover with this claim language.

Due to the ambiguity as to what is intended by the claimed “*illumination panel areas*” and the fact that this claim element is amenable to two or more plausible claim constructions, this claim is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that the Applicant considers to be the invention.

Furthermore, the claimed "*the illumination start time and the illumination 'on' time of the illumination panel areas*" (in claims 4 and 5) is additionally unclear and indefinite.

For example: How does an "*area*" have a start time or an "on" time?

See Ex parte Miyazaki (BPAI Precedential 19 November 2008).

10. The remaining claims are rejected under 35 U.S.C. 112, second paragraph, as being dependent upon rejected base claims.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

13. *Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okumura et al (US 6115018 A) in view of Chen (US 5,592,193 A), Miller et al (US 6,411,306 B1), and Terasaki (US 5,844,540 A).*

Regarding Claim 1, *Okumura* discloses a liquid crystal display apparatus [e.g., Fig. 3] comprising:

- a pair of substrates [e.g., pixel & common electrodes],
- at least one of which is transparent [e.g., inherent for a visible display];
- a liquid crystal layer [e.g., Fig. 1: liquid crystal] disposed between the pair of substrates;
- a plurality of groups of electrodes [e.g., Fig. 1: 11, 12] disposed on at least one of the pair of substrates for applying an electric field to the liquid crystal layer;
- a liquid crystal display part [e.g., Fig. 1: Clc] having a plurality of active elements [e.g., Fig. 1: 14] connected to the electrodes;
- a drive means [e.g., Fig. 3: 21, 25], supplied with display data from a means for supplying display data [e.g., Fig. 3: RGB signal],
- the drive means for driving individual pixels of the liquid crystal display part by applying a voltage [e.g., Fig. 2C] corresponding to the display data to the individual pixels,
- the drive means including a data emphasis means [e.g., Fig. 3: 25] for comparing new display data supplied for a current display frame [e.g., Fig. 2: K+1 Field] from the means for supplying display data, with previous display data supplied for a previous display frame [e.g., Fig. 2: K Field] from the means for supplying display data, and

for emphasizing the new display data to effect an overshoot drive [e.g., Fig. 2E: *V_m*] to result in a transmittance level exceeding a designated level [e.g., Fig. 2E: *V_{st}*],

in response to a difference [e.g., Fig. 2E: *white to black, black to white*] detected between the previous display data and new display data as a result of the comparison (*see the entire document, including Column 1, Lines 15-41, Column 7, Line 60 - Column 9, Line 14*).

Okumura does not appear to expressly disclose an *illumination panel unit*, as instantly claimed.

However, **Chen** discloses an illumination panel unit [e.g., Fig. 3: 64] divided into a plurality of illumination panel areas [e.g., Fig. 3: 64a-64j] providing illumination to a liquid crystal display part [e.g., Fig. 3: 62] (*see the entire document, including Column 4, Line 23 - Column 6, Line 15*).

Chen does not appear to expressly disclose an *illumination control means, that would be responsive to the overshoot drive*, as instantly claimed.

However, **Miller** discloses an illumination control means [e.g., Fig. 4: *display illumination sensor 14, surround luminance sensor 16*], that would be

responsive to an overshoot driven display [e.g., Fig. 4: *wherein if backlit LCD display 22 were overshoot driven, the resulting change in image luminance would be sensed by the light*

sensors 14, 16] resulting in the transmittance level exceeding a designated level [e.g., default display illumination stored in memory],

for dynamically controlling/adjusting power to an illumination panel unit [e.g., the LCD's backlight] so that a time integral value of transmittance for an [e.g., overly bright] overshoot-frame, is equal to a time integral value of transmittance for a [e.g., default brightness] non-overshoot frame in which the transmission reaches and stays in a stable state at the designated level [e.g., wherein Miller teaches continual adjustment of the luminance and contrast of a display unit according to changing lighting conditions such that the brightness of the displayed image remains constant under the varying conditions]

(see the entire document, including Column 2, Line 65 - Column 6, Line 62).

Miller does not appear to expressly disclose controlling an illumination start time and an illumination "on" time of the illumination panel unit, as instantly claimed.

However, *Terasaki* discloses a pair of substrates [e.g., TFT & counter substrates], at least one of which is transparent [e.g., transparent counter substrate]; a liquid crystal layer [e.g., liquid crystal] disposed between the pair of substrates; a plurality of groups of electrodes [e.g., signal and gate electrodes] disposed on at least one of the pair of substrates for applying an electric field to the liquid crystal layer; a liquid crystal display part [e.g., picture elements] having a plurality of active elements [e.g., TFTs] connected to the electrodes; and

dynamically controlling [e.g., *Fig. 1: via pulse width modulation dimmer driving circuit section 7*] an illumination start time and an illumination "on" time [e.g., *see Figs. 11-17*] of an illumination panel unit [e.g., *Fig. 1: 4*] so that a time integral value of transmittance for an otherwise overly bright [e.g., *overshoot*] frame can be dimmed to be equal to a time integral value of transmittance for a default brightness [e.g., *non-overshoot*] frame (*see the entire document, including Column 1, Lines 15-60, Column 11, Line 40 - Column 15, Line 20*).

Terasaki, Miller, Chen, and **Okumura** are analogous art, because they are from the shared inventive field of driving liquid crystal display devices. Moreover, **Terasaki, Miller**, and **Chen** are from the shared inventive field of backlight control for liquid crystal display devices.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to:

(A) use **Chen's** stacked array of fluorescent tubes [e.g., *Fig. 3: 64a-64f*] as a backlight for **Okumura's** liquid crystal display panel [e.g., *Fig. 1*], so as to provide a light source that is evenly distributed over the entirety of the LCD so as to illuminate the LCD with uniform light intensity over the whole display panel, resulting in a smooth, natural image;

(B) combine **Miller's** display illumination sensing circuitry [e.g., *Fig. 4: 14, 16*] and dynamic luminance modification techniques with **Chen's** stacked array of fluorescent tubes [e.g., *Fig. 3: 64a-64f*], so as to that brightness and contrast perception of images displayed on **Okumura's** liquid crystal display panel [e.g., *Fig. 1*] remains constant even as the display device illumination changes;

(C) use *Terasaki's* fluorescent tube pulse width modulation methods [*e.g., see Figs. 11-17*] to control *Chen's* stacked array of fluorescent tubes [*e.g., Fig. 3: 64a-64f*], so as to prevent occurrence of flicker and flutter; and

(D) adjust *Terasaki's* fluorescent tube pulse width modulation signals [*e.g., see Figs. 11-17*] via *Miller's* dynamic luminance modification techniques, so as to automatically adjusts the light-on period of *Chen's* stacked array of fluorescent tubes [*e.g., Fig. 3: 64a-64j*] according to the brightness in the environment and *Okumura's* combined liquid crystal display panel [*e.g., Fig. 1*].

Regarding Claim 2, *Okumura* discloses when said difference is detected in the display data by the comparison,

the data emphasis means emphasizes and converts the new display data so as to increase the difference [*e.g., Fig. 2E: by adding motion voltage V_m*], and

modifies a response of a corresponding pixel provided in the individual pixels of the liquid crystal display part so as to be larger than a value [*e.g., Figs. 2D, E: V_{st}*] corresponding to an original value of the new display data (*see the entire document, including Column 1, Lines 15-41, Column 7, Line 60 - Column 9, Line 14*).

Moreover, *Terasaki* discloses the illumination control means [*e.g., Fig. 1: pulse width modulation dimmer driving circuit section 7*] controls the illumination start time and the illumination "on" time of a corresponding one of the illumination panel areas [*e.g., a picture element; one of *Chen's* fluorescent tubes*] of the illumination panel unit so that a time integral

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value of an amount of light passing through the corresponding pixel while a display characteristic is changing is equal [e.g., *via dimming control*] to a time integral value of an amount of light passing through the corresponding pixel while the display characteristic is stable (see the entire document, including Column 1, Lines 15-60, Column 11, Line 40 - Column 15, Line 20).

Additionally, **Miller** discloses a time integral value of an amount of light passing through the corresponding pixel while a display characteristic is changing is equal to a time integral value of an amount of light passing through the corresponding pixel while the display characteristic is stable [e.g., *wherein Miller teaches continual adjustment of the luminance and contrast of a display unit according to changing lighting conditions such that the brightness of the displayed image remains constant under the varying conditions*] (see the entire document, including Column 2, Line 65 - Column 6, Line 62).

14. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Okumura et al** (US 6115018 A), **Chen** (US 5,592,193 A), **Miller et al** (US 6,411,306 B1), and **Terasaki** (US 5,844,540 A) as applied to claims 1 and 2 above, and further in view of **Helms** (US 5,952,992 A).

Regarding Claim 4, the earlier cited prior art does not appear to expressly disclose determining average values of values for all the display data, as instantly claimed.

However, **Helms** discloses computing a weighted average of LCD light [e.g., Fig 2: AL] signals sensed by photodetectors [e.g., Figs. 2, 4: 14' and 410] so as to adjust the brightness levels an LCD [e.g., Fig 4: 12'] via backlight driver circuitry (see the entire document, including Column 3, Lines 19-34; Column 4, Line 41 - Column 5, Line 20).

Helms, Terasaki, Miller, Chen, and Okumura are analogous art, because they are from the shared inventive field of driving liquid crystal display devices. Moreover, **Helms, Terasaki, Miller, and Chen** are from the shared inventive field of backlight control for liquid crystal display devices.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to combine **Helms's** weighted averaging techniques with **Miller's** display illumination sensing circuitry [e.g., Fig. 4: 14, 16],

so as to adjust **Terasaki's** illumination start time and the illumination "on" time PWM signals [e.g., see Figs. 11-17],

while controlling **Chen's** stacked array of fluorescent tubes [e.g., Fig. 3: 64a-64f],
to illuminate **Okumura's** liquid crystal display part [e.g., Fig. 1] for all the display data dependent on the individual display data according to the response of the liquid crystal display part after the emphasizing,

so as to correlate various sensed light levels for automatically adjusting display brightness without user intervention.

Regarding Claim 5, this claim is rejected by the reasoning applied in rejecting claim 4.

Response to Arguments

15. Applicant's arguments filed on *17 August 2009* have been fully considered but they are not persuasive.

Applicant's arguments with respect to *claims 1, 2, 4, and 5* have been considered but are moot in view of the new ground(s) of rejection.

By such reasoning, rejection of the claims is deemed necessary, proper, and thereby maintained at this time.

Conclusion

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Piziali whose telephone number is (571) 272-7678. The examiner can normally be reached on Monday - Friday (6:30AM - 3PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chanh Nguyen can be reached on (571) 272-7772. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jeff Piziali/
Primary Examiner, Art Unit 2629
16 March 2010